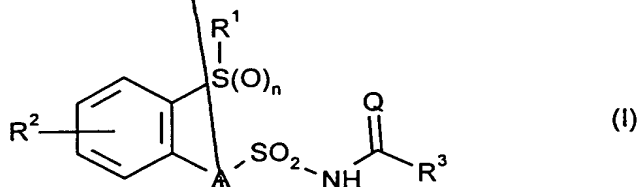


Patent Claims

1. Sulfonylamino(thio)carbonyl compounds of the general formula (I)



in which

n represents the numbers 0, 1 or 2,

A represents a single bond, or oxygen or sulfur, or the grouping N-R, in which R represents hydrogen, alkyl, alkenyl, alkynyl or cycloalkyl,

Q represents oxygen or sulfur,

R¹ represents hydrogen or formyl or represents respectively optionally substituted alkyl, alkoxy, alkylamino, alkoxyamino, dialkylamino, N-alkoxy-N-alkyl-amino, alkylcarbonyl, alkoxy carbonyl, alkylsulfonyl, alkenyl, alkynyl, cycloalkyl, cycloalkylcarbonyl or cycloalkylsulfonyl,

R² represents cyano or halogen or represents respectively optionally substituted alkyl, alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, dialkylaminosulfonyl, alkenyl, alkynyl, alkenyloxy or alkynyloxy, and

R³ represents respectively optionally substituted heterocyclyl having 5 ring members of which at least one is oxygen, sulfur or nitrogen and from one to three further ring members can be nitrogen,

and salts of compounds of the formula (I).

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2. Compounds of the formula (I) as claimed in claim 1, characterized in that

n represents the numbers 0, 1 or 2,

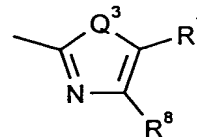
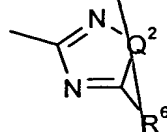
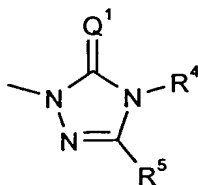
A represents a single bond, or oxygen or sulfur, or the grouping N-R, in which R represents hydrogen, C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkinyl or C₃-C₆-cycloalkyl,

Q represents oxygen or sulfur,

R¹ represents hydrogen or formyl or represents respectively optionally cyano-, fluoro-, chloro-, bromo-, phenyl- or C₁-C₄-alkoxy-substituted alkyl, alkoxy, alkylamino, alkoxyamino, dialkylamino, N-alkoxy-N-alkyl-amino, alkylcarbonyl, alkoxy carbonyl, alkylsulfonyl, alkenyl or alkynyl having in each case up to 6 carbon atoms, or represents respectively optionally cyano-, fluoro-, chloro-, bromo- or C₁-C₄-alkyl-substituted C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-carbonyl or C₃-C₆-cycloalkyl-sulfonyl,

R² represents cyano, fluoro, chloro or bromo or represents respectively optionally cyano-, fluoro-, chloro-, bromo- or C₁-C₄-alkoxy-substituted alkyl, alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, dialkylaminosulfonyl, alkenyl, alkynyl, alkenyloxy or alkynyloxy having in each case up to 6 carbon atoms, and

R³ represents respectively optionally substituted heterocyclyl of the formulae below,



in which

Q^1 , Q^2 and Q^3 each represent oxygen or sulfur, and

R^4 represents hydrogen, hydroxyl, amino or cyano, or represents C_2 - C_{10} -alkylideneamino, or represents optionally fluoro-, chloro-, bromo-, cyano-, C_1 - C_4 -alkoxy-, C_1 - C_4 -alkyl-carbonyl- or C_1 - C_4 -alkoxy-carbonyl-substituted C_1 - C_6 -alkyl, or represents respectively optionally fluoro-, chloro- and/or bromo-substituted C_2 - C_6 -alkenyl or C_2 - C_6 -alkinyl, or represents respectively optionally fluoro-, chloro-, bromo-, cyano-, C_1 - C_4 -alkoxy- or C_1 - C_4 -alkoxy-carbonyl-substituted C_1 - C_6 -alkoxy, C_1 - C_6 -alkylamino or C_1 - C_6 -alkyl-carbonylamino, or represents C_3 - C_6 -alkenyloxy, or represents di- $(C_1$ - C_4 -alkyl)-amino, or represents respectively optionally fluoro-, chloro-, bromo-, cyano- and/or C_1 - C_4 -alkyl-substituted C_3 - C_6 -cycloalkyl, C_3 - C_6 -cycloalkylamino or C_3 - C_6 -cycloalkyl- C_1 - C_4 -alkyl, or represents respectively optionally fluoro-, chloro-, bromo-, cyano-, nitro-, C_1 - C_4 -alkyl-, trifluoromethyl- and/or C_1 - C_4 -alkoxy-substituted phenyl or phenyl- C_1 - C_4 -alkyl,

R^5 represents hydrogen, hydroxyl, mercapto, amino, cyano, fluoro, chloro, bromo or iodo, or represents optionally fluoro-, chloro-, bromo-, cyano-, C_1 - C_4 -alkoxy-, C_1 - C_4 -alkyl-carbonyl- or C_1 - C_4 -alkoxy-carbonyl-substituted C_1 - C_6 -alkyl, or represents respectively optionally fluoro-, chloro- and/or bromo-substituted C_2 - C_6 -alkenyl or C_2 - C_6 -alkinyl, or represents respectively optionally fluoro-, chloro-, cyano-, C_1 - C_4 -alkoxy- or C_1 - C_4 -alkoxy-carbonyl-substituted C_1 - C_6 -alkoxy, C_1 - C_6 -alkylthio, C_1 - C_6 -alkylamino or C_1 - C_6 -alkylcarbonylamino, or represents C_3 - C_6 -alkenyloxy, C_3 - C_6 -alkinyloxy, C_3 - C_6 -alkenylthio, C_3 - C_6 -alkinylthio, C_3 - C_6 -alkenylamino or C_3 - C_6 -alkinylamino, or represents di- $(C_1$ - C_4 -alkyl)-amino, or represents respectively optionally methyl- and/or ethyl-substituted aziridino, pyrrolidino, piperidino or morpholino, or represents respectively optionally fluoro-, chloro-, bromo-, cyano- and/or C_1 - C_4 -alkyl-substituted C_3 - C_6 -

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cycloalkyl, C₅-C₆-cycloalkenyl, C₃-C₆-cycloalkyloxy, C₃-C₆-cycloalkylthio, C₃-C₆-cycloalkylamino, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, C₃-C₆-cycloalkyl-C₁-C₄-alkylthio or C₃-C₆-cycloalkyl-C₁-C₄-alkylamino, or represents respectively optionally fluoro-, chloro-, bromo-, cyano-, nitro-, C₁-C₄-alkyl-, trifluoromethyl-, C₁-C₄-alkoxy- and/or C₁-C₄-alkoxy-carbonyl-substituted phenyl, phenyl-C₁-C₄-alkyl, phenoxy, phenyl-C₁-C₄-alkoxy, phenylthio, phenyl-C₁-C₄-alkylthio, phenylamino or phenyl-C₁-C₄-alkylamino, or

R⁴ and R⁵ together represent optionally branched alkanediyl having 3 to 11 carbon atoms, and

R⁶, R⁷ and R⁸ are identical or different and each represent hydrogen, cyano, fluoro, chloro, bromo, or represent respectively optionally fluoro-, chloro-, bromo- or C₁-C₄-alkoxy-substituted alkyl, alkenyl, alkynyl, alkoxy, alkenyloxy, alkynyloxy, alkylthio, alkenylthio, alkynylthio, alkylsulfinyl or alkylsulfonyl having in each case up to 6 carbon atoms, or represent optionally cyano-, fluoro-, chloro-, bromo- or C₁-C₄-alkyl-substituted cycloalkyl having 3 to 6 carbon atoms,

and the sodium, potassium, magnesium, calcium, ammonium, C₁-C₄-alkyl-ammonium, di-(C₁-C₄-alkyl)-ammonium, tri-(C₁-C₄-alkyl)-ammonium, tetra-(C₁-C₄-alkyl)-ammonium, tri-(C₁-C₄-alkyl)-sulfonium, C₅- or C₆-cycloalkyl-ammonium and di-(C₁-C₂-alkyl)-benzyl-ammonium salts of compounds of the formula (I).

3. Compounds of the formula (I) as claimed in claim 1, characterized in that

n represents the numbers 0, 1 or 2,

A represents a single bond, or oxygen or the grouping N-R, in which R represents hydrogen, methyl, ethyl, n- or i-propyl, n-, i- or s-butyl,

propenyl, butenyl, propynyl, butinyl, cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl,

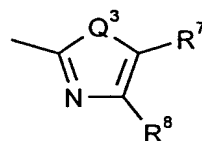
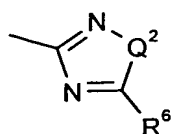
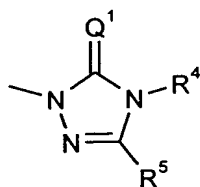
Q represents oxygen or sulfur,

5 R¹ represents hydrogen or formyl, or represents respectively optionally fluoro-, chloro-, bromo-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i- or s-butyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, methylamino, ethylamino, n- or i-propylamino, n-, i-, s- or t-butylamino, methoxyamino, ethoxyamino, n- or i-propoxyamino, n-, i-, s- or t-butoxyamino, dimethylamino, diethylamino, N-methoxy-N-methyl-
10 amino, acetyl, propionyl, butyryl, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, methylsulfonyl, ethylsulfonyl, n- or i-propylsulfonyl, n-, i-, s- or t-butylsulfonyl, propenyl, butenyl, propynyl or butinyl, or represents respectively optionally fluoro-, chloro- or methyl-substituted cyclopropyl, cyclopropylcarbonyl or cyclopropylsulfonyl,

15 R² represents cyano, fluoro, chloro or bromo, or represents respectively optionally fluoro-, chloro-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i- or s-butyl, methoxy, ethoxy, n- or i-propoxy, n-, i- or s-butoxy, methylthio, ethylthio, n- or i-propylthio, n-, i-, s- or t-butylthio, methylsulfinyl, ethylsulfinyl, methylsulfonyl, ethylsulfonyl, dimethylaminosulfonyl or diethylaminosulfonyl, or represents propenyl,
20 butenyl, propynyl, butinyl, propenyloxy, butenyloxy, propynyloxy or butinyloxy, and

R³ represents respectively optionally substituted heterocyclyl of the formulae below:

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in which

Q^1 , Q^2 and Q^3 each represent oxygen or sulfur, and

R^4 represents hydrogen, hydroxyl or amino, or represents C_3 - C_8 -alkylideneamino, or represents respectively optionally fluoro-, chloro-, cyano-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, or represents respectively optionally fluoro-, chloro- or bromo-substituted propenyl, butenyl, propynyl or butinyl, or represents respectively optionally fluoro-, chloro-, cyano-, methoxy- or ethoxy-substituted methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, methylamino, ethylamino, n- or i-propylamino, n-, i-, s- or t-butylamino, or represents propenyloxy or butenyloxy, or represents dimethylamino or diethylamino, or represents respectively optionally fluoro-, chloro-, methyl- and/or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropylamino, cyclobutylamino, cyclopentylamino, cyclohexylamino, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl or cyclohexylmethyl, or represents respectively optionally fluoro-, chloro-, methyl-, trifluoromethyl- and/or methoxy-substituted phenyl or benzyl,

R^5 represents hydrogen, hydroxyl, mercapto, amino, fluoro, chloro or bromo, or represents respectively optionally fluoro-, chloro-, cyano-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, or represents respectively optionally fluoro-, chloro- or bromo-substituted ethenyl, propenyl, butenyl, propynyl or butinyl, or represents respectively optionally fluoro-, chloro-, cyano-, methoxy- or ethoxy-substituted methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, methylthio,

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ethylthio, n- or i-propylthio, n-, i-, s- or t-butylthio, methylamino, ethylamino, n- or i-propylamino, n-, i-, s- or t-butylamino, or represents propenyloxy, butenyloxy, propynyloxy, butinyloxy, propenylthio, propadienylthio, butenylthio, propynylthio, butinylthio, propenylamino, butenylamino, propynylamino or butinylamino, or represents dimethylamino, diethylamino or dipropylamino, or represents respectively optionally fluoro-, chloro-, methyl- and/or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopentenyl, cyclohexenyl, cyclopropyloxy, cyclobutyloxy, cyclopentyloxy, cyclohexyloxy, cyclopropylthio, cyclobutylthio, cyclopentylthio, cyclohexylthio, cyclopropylamino, cyclobutylamino, cyclopentylamino, cyclohexylamino, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, cyclopropylmethoxy, cyclobutylmethoxy, cyclopentylmethoxy, cyclohexylmethoxy, cyclopropylmethylthio, cyclobutylmethylthio, cyclopentylmethylthio, cyclohexylmethylthio, cyclopropylmethylamino, cyclobutylmethylamino, cyclopentylmethylamino or cyclohexylmethylamino, or represents respectively optionally fluoro-, chloro-, methyl-, trifluoromethyl-, methoxy- and/or methoxycarbonyl-substituted phenyl, benzyl, phenoxy, benzyloxy, phenylthio, benzylthio, phenylamino or benzylamino, or

R⁴ and R⁵ together represent optionally branched alkanediyl having 3 to 11 carbon atoms, furthermore

R⁶, R⁷ and R⁸ are identical or different and each represent hydrogen, cyano, fluoro, chloro or bromo, or represent respectively optionally fluoro-, chloro-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, propenyl, butenyl, propynyl, butinyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, propenyloxy, butenyloxy, propynyloxy, butinyloxy, methylthio, ethylthio, n- or i-propylthio, n-, i-, s- or t-butylthio, propenylthio, butenylthio, propynylthio, butinylthio, methylsulfinyl,

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ethylsulfinyl, methylsulfonyl or ethylsulfonyl, or represent cyclopropyl.

4. Compounds of the formula (I) as claimed in claim 1, characterized in that

n represents the numbers 0, 1 or 2,

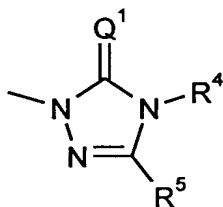
5 A represents a single bond,

Q represents oxygen or sulfur,

R¹ represents respectively optionally fluoro- and/or chloro-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl,

10 R² represents fluoro, chloro or bromo, or represents respectively optionally fluoro-, and/or chloro-substituted methyl, ethyl, methoxy, ethoxy, methylthio or ethylthio - in each case in position 6 -, and

R³ represents optionally substituted triazolinyI of the formula below,



in which

15 Q¹ represents oxygen or sulfur, and

R⁴ represents respectively optionally fluoro-, chloro-, cyano-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, or represents propenyl or propinyl, or represents methoxy, ethoxy,

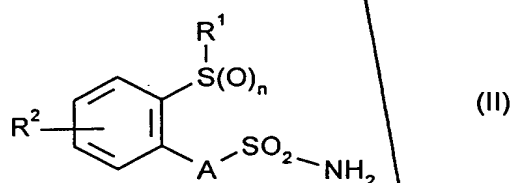
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n- or i-propoxy, or represents cyclopropyl, and

R^5 represents hydrogen, chloro or bromo, or represents respectively optionally fluoro-, chloro-, cyano-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, or represents respectively optionally fluoro- and/or chloro-substituted propenyl or propinyl, or represents respectively optionally fluoro-, chloro-, cyano-, methoxy- or ethoxy-substituted methoxy, ethoxy, n- or i-propoxy, methylthio, ethylthio, n- or i-propylthio, or represents propenyloxy or cyclopropyl.

- 5
10 5. A process for preparing compounds of the formula (I) as claimed in claim 1 and salts thereof, which comprises reacting

(a) aminosulfonyl compounds of the general formula (II)



in which

15 n, A, R^1 and R^2 are each as defined in claim 1

with (thio)carboxylic acid derivatives of the general formula (III)



in which

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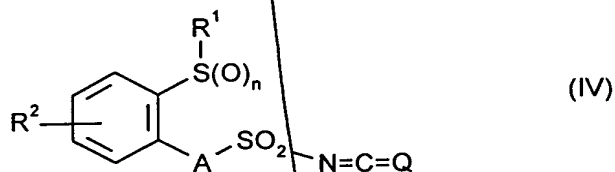
Q and R³ are each as defined in claim 1 and

Z represents halogen, alkoxy, aryloxy or arylalkoxy,

optionally in the presence of an acid acceptor and optionally in the presence of a diluent,

or

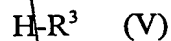
(b) sulfonyl iso(thio)cyanates of the general formula (IV)



in which

n, A, Q, R¹ and R² are each as defined above

with heterocycles of the general formula (V)



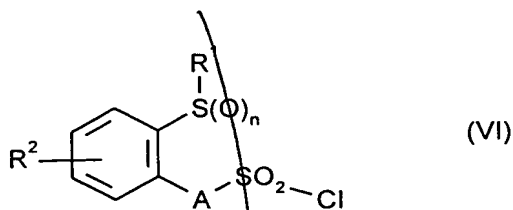
in which

R³ is as defined above,

optionally in the presence of a reaction auxiliary and optionally in the presence of a diluent,

or

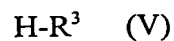
(c) chlorosulfonyl compounds of the general formula (VI)



in which

n, A, R¹ and R² are each as defined above

with heterocycles of the general formula (V)



in which

R³ is as defined above

and metal (thio)cyanates of the general formula (VII)



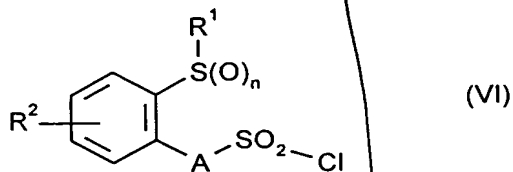
in which

Q is as defined above,

optionally in the presence of a reaction auxiliary and optionally in the presence of a diluent,

or

(d) chlorosulfonyl compounds of the general formula (VI)



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in which

n, A, R¹ and R² are each as defined above

with (thio)carboxamides of the general formula (VIII)



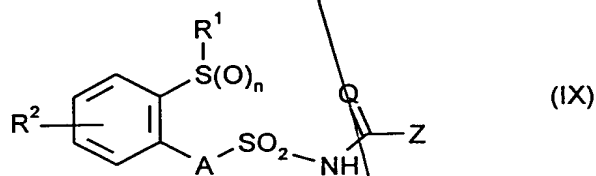
in which

Q and R³ are each as defined above,

optionally in the presence of an acid acceptor and optionally in the presence of a diluent,

or

(e) sulfonylamino(thio)carbonyl compounds of the general formula (IX)



in which

n, A, Q, R¹ and R² are each as defined above and

Z represents halogen, alkoxy, aryloxy or arylalkoxy,

with heterocycles of the general formula (V)

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in which

R^3 is as defined above,

optionally in the presence of an acid acceptor and optionally in the presence of a diluent,

or

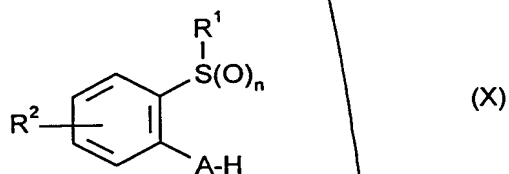
(f) heterocycles of the general formula (V)



in which

R^3 is as defined above,

with chlorosulfonyl iso(thio)cyanate, optionally in the presence of a diluent, and reacting the adducts formed in this reaction in situ with benzene derivatives of the general formula (X)



in which

n , A , R^1 and R^2 are each as defined above,

optionally in the presence of an acid acceptor and optionally in the presence of a diluent,

and converting, if desired, the compounds of the formula (I) obtained by processes (a), (b), (c), (d), (e) or (f) by customary methods into salts.

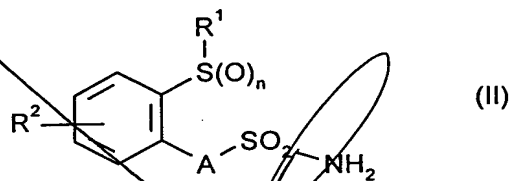
6. Herbicidal compositions, characterized by a content of at least one compound of the formula (I) or one of its salts as claimed in claim 1.

- 5 7. The use of compounds of the general formula (I) or of salts thereof as claimed in claim 1 for controlling undesirable plant growth.

8. A method for controlling weeds, characterized in that compounds of the general formula (I) or salts thereof as claimed in claim 1 are allowed to act on the weeds or their habitat.

- 10 9. A method for preparing herbicidal compositions, which comprises mixing compounds of the general formula (I) or salts thereof as claimed in claim 1 with extenders and/or surface-active agents.

- 10 Aminosulfonyl compounds of the general formula (II)



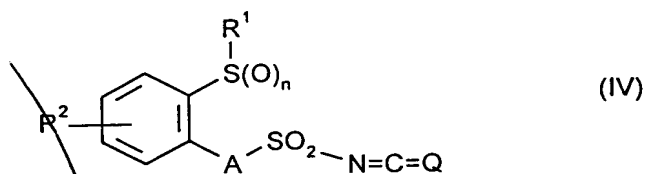
15 in which

n, A, R¹ and R² are each as defined in claim 1,

but excluding the compound 2,6-bis-methylthio-benzenesulfonamide.

11. Sulfonyl iso(thio)cyanates of the general formula (IV)

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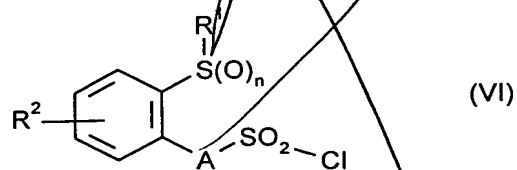


in which

n, A, Q, R¹ and R² are each as defined in claim 1,

but excluding the compound 2,6-bis-methylthio-phenylsulfonyl isocyanate.

- 5 12. Chlorosulfonyl compounds of the general formula (VI)



in which

n, A, R¹ and R² are each as defined in claim 1.

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Wald
BZ